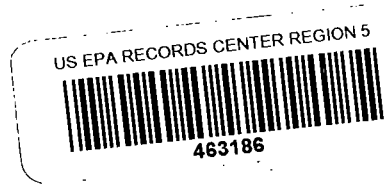
I.1
4-26-02



SITE SAMPLING PLAN
Y NOT USED TIRES
ROCKFORD, WINNEBAGO COUNTY, ILLINOIS

Prepared for

U.S. Environmental Protection Agency
Region 5 Emergency Response Branch
77 West Jackson Boulevard
Chicago, IL 60604

Date Prepared:	26 April 02
Contract No.:	68-W-00-129
Technical Direction Document No.:	S05-0203-017
Prepared by:	Tetra Tech, EM Inc.
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CONTENTS

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TABLES

1.0 INTRODUCTION

The Tetra Tech EM, Inc. (Tetra Tech) Superfund Technical Assessment and Response Team (START) contractor prepared this field sampling plan for the Y Not Used Tire (Y Not) site in Rockford, Illinois under U.S. Environmental Protection Agency (U.S. EPA) Technical Direction Document (TDD) No. S05-0203-017. The scope of this TDD is to prepare a sampling plan and conduct site assessment activities at the site. Sections 2.0 through 8.0 of this sampling plan discuss the site background; project objectives, scope, and schedule; site reconnaissance procedures; sampling procedures; sample analytical parameters; quality assurance/quality control (QA/QC) procedures; and reporting requirements. References used to prepare this sampling plan are listed after Section 8.0. Attachment A to this sampling plan contains Tetra Tech standard operating procedures (SOP) for drum and soil sampling and Attachment B contains site figures.

2.0 SITE INFORMATION

This section briefly discusses the Y Not site and provides site background information.

2.1 SITE LOCATION AND DESCRIPTION

The Y Not site is located at 1140 Harrison Avenue, Rockford, Winnebago County, Illinois (see Figure 1). The site consists of two buildings; the first building has three interconnected garage-type structures, and the second building consists of an office and interior loading dock. The site is bordered to the north by a concrete drainage ditch and a vacant, one-story manufacturing building. To the east is a vacant lot, to the west is a warehouse, and to the south is a one-story commercial building (see Attachment B). The site is located in a mixed industrial, commercial, and manufacturing area.

2.2 SITE BACKGROUND

On May 30, 2001, the Illinois Environmental Protection Agency (IEPA) Rockford Regional Office received a complaint of abandoned drums in a storage building located at the Y Not site. The complainant is a tenant of the facility and said that while moving plastic carboys, he discovered 30 - 50 containers in the back of a storage building in various stages of decay.

The outside property is unsecured and drums and lead batteries were noted on the property. The buildings are secured with a locked garage door on the front and a locked swinging door on the back of the building. The inspection revealed approximately 24 55-gallon drums, 8 lead car batteries, 12 15-gallon pails, 12 5-gallon buckets, and 12 fiber drums located in the first building. Some of these drums were labeled as methylene chloride, polymeric diphenylmethane diisocyanate (MDI), methyl ethyl ketone (MEK), and copper pyro phosphate. Other drums contained labels indicating the contents were machine cleaners, solvents, and corrosives. There was evidence of release from several of the drums; however, there was no flowing liquid or large pools at the time of the inspection. Drums were also noted to be unsafely stacked on top of each other.

3.0 PROJECT SUMMARY

This section summarizes the project's objective, scope of work, and tentative schedule.

3.1 OBJECTIVE

The objective of the field sampling at the Y Not site is to characterize the soil and the materials in the drums at the site and identify areas that may pose a threat to human health and the environment. This field sampling plan provides a framework of QA/QC protocols to be followed during sampling, analysis, and data review procedures.

3.2 SCOPE OF WORK

The scope of work for the field sampling consists of those tasks necessary to fulfill the objectives discussed in Section 3.1. These tasks include conducting a site reconnaissance and consulting with the On-Scene Coordinator (OSC) about areas that may potentially have been impacted by site operations or storage of materials. Drum and soil samples locations will be identified and samples will be collected and analyzed. Sections 4.0 through 8.0 of this plan provide additional details.

3.3 TENTATIVE SCHEDULE

Table 1 presents a tentative schedule for the project.

TABLE 1

TENTATIVE PROJECT SCHEDULE

Activity	Tentative Due Date
Submit draft site sampling plan to OSC for review	24 April 02
Finalize sampling plan	25 April 02
Order equipment and supplies	25 April 02
Finalize laboratory procurement	25 April 02
Conduct sampling	29 and 30 April 02
Laboratory receives samples	01 May 02
Receive verbal analytical results	20 May 02
Receive hard copy analytical results	27 May 02
Submit draft letter report with validated analytical results to OSC	03 June 02
Submit final letter report	17 June 02

Note:

OSC = On-Scene Coordinator

4.0 SITE RECONNAISSANCE PROCEDURES

The Y Not site reconnaissance will be conducted in the two on-site buildings and surrounding the building. Site reconnaissance activities will consist of a walk-through of each area to assess potentially impacted locations and these locations will be flagged for sampling. In addition, any containers observed on the site will be inspected; photographed; and monitored with a radiation meter, a combustible gas indicator (CGI), and a photoionization detector (PID). If a container holds any product or waste, the container will be marked for sampling and the locations will be discussed with the OSC. All pertinent information will be entered in the field logbook.

5.0 SAMPLING PROCEDURES

On-site containers and surface soil locations will be sampled as discussed below. Attachment B contains a figure that depicts the proposed sampling locations. The sampling procedures summarized below will be followed during the site assessment. The actual numbers of samples and sampling locations may vary depending on conditions encountered in the field and after discussions with the OSC. All sampling locations will be photographed and included in the photographic log. Tetra Tech SOPs for collection of soil and drum samples are provided in Attachment A.

On-Site Containers: Previous site investigations revealed that drums are leaking, corroding, and stacked unsafely on top of each other. Caution will be taken to sample drums in dilapidated conditions. Efforts will be made to only sample drums that can be accessed without being moved. A ladder will be used to access drums stacked on top of each other. If it is necessary to move a drum to collect additional samples, START members will first evaluate the integrity of the drum to be moved and determine if the drum is safe to move. If after consultation with the OSC it is necessary to move a drum, and if the drum appears to be unsafe to move, the contents of the drum will first be transferred to an overpack using a parastalic pump. However, parastalic pumps may become damaged from corrosive and unknown products. A hazcat kit will be available to test the material before using the pump. If the hazcat kit reveals the contents of the drum to be incompatible with the pump, contents will not be transferred and the drum will not be moved. A local supplier that carries overpacks and pumps will be contacted before going to site to make sure that these materials are available, in the case that it is necessary to use them.

Surface Soil: Three surficial (0 to 6 inches below ground surface [bgs]) grab soil samples will be collected from areas of the property were there is evidence of potential environmental impact. The sampling procedures summarized below will be followed during the site assessment, but the number of samples and sampling locations may vary depending on conditions encountered in the field. Surface soil grab samples will be collected from 0 to 6 inches bgs using dedicated steel trowels and spoons.

As discussed in Section 4.0, sampling locations will be identified during the site reconnaissance. In accordance with QA/QC protocols, a duplicate sample and a matrix spike/matrix spike duplicate (MS/MSD) sample will be collected at a minimum of one for every 10 or fewer investigative samples collected. Dedicated, disposable sampling equipment will be used to collect all samples; therefore, equipment blanks will not be collected.

Table 2 summarizes sampling equipment and analytical parameters required for soil and drum samples. Additional sampling may be performed after sample analytical results from the site assessment are reviewed. Any additional sampling will be coordinated and planned by the OSC.

TABLE 2

SUMMARY OF SAMPLING EQUIPMENT AND ANALYTICAL PARAMETERS

Matrix	Analytical Parameters	Equipment	Type	Decontamination Required
Soil	TCLP metals, VOCs, SVOCs, cyanide, and pH	Stainless steel trowels, spoons, and foil pans	Dedicated	No
Drums	RCRA metals, VOCs, SVOCs, ignitability, cyanide, and pH	Drum thieves and parastalic pump	Dedicated	No

Notes:

SVOC = Semivolatile organic compound
TAL = Target Analyte List
VOC = Volatile organic compound

6.0 SAMPLE ANALYTICAL PARAMETERS

As shown in Table 2, soil samples will be analyzed for TCLP metals, VOCs, and SVOCs, cyanide, and pH. Drum samples will be analyzed for RCRA metals, VOCs, SVOCs, cyanide, ignitability, and pH. Table 3 summarizes the sample analytical parameters for the project along with the analytical methods and sample containers.

TABLE 3

SUMMARY OF SAMPLE ANALYTICAL PARAMETERS, METHODS, AND BOTTLE REQUIREMENTS

Analyte	Matrix and No. of Samples	Analytical Method	Sample Container	Preservation	Holding Time	Duplicate Samples	MS/MSD
SVOCs	Soil: 3 Drum: 5	SW 846 8260B	1 4-ounce, clear, wide-mouth jars	Ice to 4°C	24 days to extract, 40 days to analyze	1	1
VOCs	Soil: 3 Drum: 5	Encore samples SW 846 8270C	3 5-gram 1 4-ounce, clear, wide-mouth jar	Ice to 4°C	14 Days		
TCLP Metals	Soil: 3	SW 846 Methods 1311, 7470A, 6020	1 4-ounce, clear wide-mouth jar	Ice to 4°C	6 months (28 days for mercury)	1	1
RCRA Metals	Drum: 5	SW 846 6010B and SW 846 7000 series	1 4-ounce, clear, wide-mouth jar	Ice to 4°C	6 months (28 days for mercury)	1	1
pH	Soil: 3 Drum: 5	SW 846 Method 9040B	1 4-ounce, clear, wide-mouth jar	Ice to 4°C	None	1	1
Ignitability	Drum: 5	SW 846 Method 1010 or 1020A	1 4-ounce, clear, wide-mouth jar	Ice to 4°C	None	1	1
Cyanide	Soil: 3 Drum: 5	SW 846 Method 9010	1 4-ounce, clear, wide-mouth jar	Ice to 4°C	14 days	1	1

Key:

MS/MSD = Matrix sample/matrix sample duplicate
RCRA = Resource Conservation and Recovery Act
SVOC = Semivolatile organic compound
TCLP = Toxicity Characteristic Leaching Procedure
VOC = Volatile organic compound
SWM = Solid waste method

7.0 QUALITY ASSURANCE/QUALITY CONTROL PROCEDURES

This section discusses QA/QC procedures for field activities, sample documentation and management, sample handling and shipment, and data validation.

7.1 QUALITY CONTROL OF FIELD ACTIVITIES

The START project manager will be responsible for ensuring that sample quality and integrity are maintained in accordance with the START Region 5 Quality Assurance Project Plan. Sample labeling and documentation will be performed as described in Section 7.2 of this plan.

7.2 SAMPLE DOCUMENTATION AND MANAGEMENT

All sample documents will be completed legibly and in ink. Any document correction or revision will be made by lining through the original entry and initialing the change (see the field documentation SOP in the attachment). Documentation procedures for the field logbook, sample labels, chain-of-custody records, and custody seals are described below.

Field Logbook: The field logbook details field activities and observations in an accurate and factual manner. The individual making logbook entries will sign each entry. Entries will include the following information:

- Site name and project number
- Names of personnel on site
- Dates and times of all entries
- Descriptions of all site activities as well as site entry and exit times
- Noteworthy events and discussions
- Weather conditions
- Site observations
- Identification and descriptions of samples and sampling locations
- Dates and times of sample collection
- Records of photographs
- Site sketches

Sample Label: A sample label will be attached to each sample container. The sample label will include the following information at a minimum:

- Sample identification number
- Sample collection date and time
- Name of sampler
- Sample preservative
- Requested sample analyses

Chain-of-Custody Record: A chain-of-custody record will be maintained from the time of sample collection until the sample's final disposition. Every transfer of sample custody will be noted and signed for on the record, and a copy of the record will be kept by each individual who has signed it. The chain-of-custody record will include the following information at a minimum:

- Sample identification number
- Sampling location
- Sample collection date
- Sample information
- Names and signatures of samplers
- Signatures of all individuals who have had custody of the sample

Custody Seals: Custody seals will be used on each shipping container to confirm that samples have not been disturbed. The individual who has custody of the samples will sign and date the seals and affix them to the shipping container so that the container cannot be opened without breaking the seals.

7.3 SAMPLE HANDLING AND SHIPMENT

Each shipping container will be sealed and secured with custody seals. Samples will be labeled as described above. All sample documentation will be affixed to the underside of each shipping container lid. The lid will be sealed, and custody seals will be affixed to the shipping container.

7.4 DATA VALIDATION

START will perform data validation of the sample analytical results in accordance with U.S. EPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (U.S. EPA 1999) and Inorganic Review (U.S. EPA 1994).

8.0 REPORTING REQUIREMENTS

Validated sample analytical results and other information gathered will be summarized in a site assessment report. The site assessment report will be submitted to the OSC upon completion.

REFERENCES

U.S. EPA. 1995. "Focused Site Inspection Prioritization Site Evaluation Report, Lakeland Estates." Prepared for Site Assessment Section by Ecology and Environment, Inc.

U.S. EPA. 1999. "Contract Laboratory Program National Functional Guidelines for Organic Data Review." October.

U.S. EPA. 1994. "Contract Laboratory Program National Functional Guidelines for Inorganic Data Review". February.

Illinois Environmental Protection Agency (IEPA). Request Letter.

ATTACHMENT A

STANDARD OPERATING PROCEDURES

(26 Sheets)

SOP APPROVAL FORM

TETRA TECH EM INC.

ENVIRONMENTAL STANDARD OPERATING PROCEDURE

SOIL SAMPLING

SOP NO. 005

REVISION NO. 1

Last Reviewed: December 1999

K Riesing

Quality Assurance Approved

March 23, 1992

Date

P.O. 3074

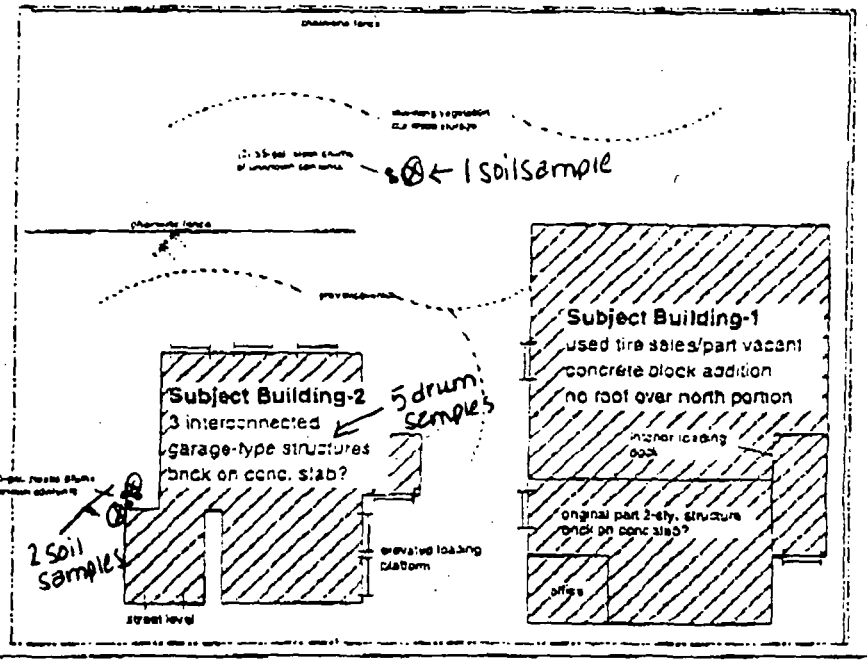
61901

N

Vacant lot

1-sty commercial/mfg structure
vacant?

concrete drainage ditch



3 large ASTs of unknown contents

Kelly-Williamson Co./
Mobil Gas Co.

Warehouse
additional ASTs and gas stationare located farther west

Vacant lot farther east is a vacant partial 2-sty commercial structure 1240 Harrison

East Harrison Street

Sjostrom & Sons Construction Co.
1-sty commer. bldg
warehouse and storage are located farther south

8th Street

Eastwing Manufacturing Company

PIONEER ENVIRONMENTAL, INC.

Figure 1
Site Diagram
1140 East Harrison Road
Rockford, Illinois

Scale: 1" = ~75'
Drawn by: E. Leslie
Legend:

Date: December 26, 2000
Checked by:
Job No.:

Core sampler: Thin-wall cylindrical metal tube with diameter of 0.5 to 3 inches, a tapered nosepiece, a "T" handle to facilitate sampler deployment and retrieval, and a check valve (flutter valve) in the headpiece.

Spatulas or Spoons: Stainless steel instruments for collecting loose unconsolidated material.

Trier: Tube cut in half lengthwise with a sharpened tip that allows for collection of sticky solids or loosening of cohesive soils.

Trowel: Tool with a scooped blade 4 to 8 inches long and 2 to 3 inches wide with a handle.

Split-Spoon (or Split-Barrel) Sampler: Thick-walled steel tube that is split lengthwise. A cutting shoe is attached to the lower end; the upper end contains a check valve and is connected to drill rods.

Thin-Wall Tube Sampler: Steel tube (1 to 3 millimeters thick) with tapered bottom edge for cutting. The upper end is fastened to a check valve that is attached to drill rods.

1.4 REFERENCES

Barth, D.S., and B.J. Mason. 1984. "Soil Sampling Quality Assurance Users Guide." EPA 600/4-84-043.

DeVara, E.R., B.P. Simmons, R.D. Stephens, and D.L. Storm. 1980. "Samplers and Sampling Procedures for Hazardous Waste Streams." EPA 600/2-80-018. January.

Mason, B.J. 1983. "Preparation of Soil Sampling Protocol: Techniques and Strategies." EPA 600/4-83-020.

U.S. Environmental Protection Agency (EPA). 1987. "A Compendium of Superfund Field Operations Methods." OSWER Directive 9355.0-14 (EPA/540/P-87/001).

EPA. 1991. "Handbook of Suggested Practices for the Design and Installation of Ground-Water Monitoring Wells." March. EPA/600/4-89/034.

EPA. 1994. "Soil Sampling." Environmental Response Team SOP #2012 (Rev. #0.0, 11/16/94). On-Line Address: http://204.46.140.12/media_resrcs/media_resrcs.asp?Child1=

2.1 TEST PIT SOIL SAMPLING

Test pit soil sampling is conducted when a complete soil profile is required or as a means of locating visually detectable contamination. This type of sampling provides a detailed description of the soil profile and allows for multiple samples to be collected from specific soil horizons. Prior to conducting any test pit or trench excavation with a backhoe, the sampling team should ensure that the sampling area is clear of utility lines, subsurface pipes, and poles.

A test pit or trench is excavated by incrementally removing soil material with a backhoe bucket. The excavated soil is placed on plastic sheeting well away from the edge of the test pit. A test pit should not be excavated to depths greater than 4 feet unless its walls are properly stabilized.

Personnel entering the test pit may be exposed to toxic or explosive gases and oxygen deficient environments. Air monitoring is required before entering the test pit and the use of appropriate respiratory gear and protective clothing is mandatory. At least two persons must be present at the test pit before sampling personnel enter the excavation and begin soil sampling.

Test pits are not practical for depths greater than 15 feet. If soil samples are required from depths greater than 15 feet, samples should be obtained using test borings instead of test pits. Test pits are also usually limited to a few feet below the water table. In some cases, a pumping system may be required to control the water level within the pits.

Access to open test pits should be restricted by use of flagging, tape, or fencing. If a fence is used, it should be erected at least 6 feet from the perimeter of the test pit. The test pit should be backfilled as soon as possible after sampling is completed.

Soil samples can be collected from the walls or bottom of a test pit using various equipment. A hand auger, bucket auger, or core sampler can be used to obtain samples from various depths. A trier, trowel, or spoons can be used to obtain samples from the walls or pit bottom surface.

deposited onto plastic sheeting. This procedure is repeated until the desired depth is reached and the soil sample is obtained. The auger is then removed from the boring and the soil sample is collected directly from the auger into an appropriate sample container.

2.2.2 Bucket Auger

A bucket auger, equipped similarly as the hand auger, is used to obtain disturbed samples from a depth of up to 4 feet. A bucket auger should be used when sampling stony or dense soil that prohibits the use of a hand-operated core or screw auger. A bucket auger with closed blades is used in soil that cannot generally be penetrated or retrieved by a core sampler.

The bucket auger is rotated while downward pressure is exerted until the bucket is full. The bucket is then removed from the boring, the collected soil is placed on plastic sheeting, and this procedure is repeated until the appropriate depth is reached and a sample is obtained. The bucket is then removed from the boring and the soil sample is transferred from the bucket to an appropriate sample container.

2.2.3 Core Sampler

A hand-operated core sampler (Figure 1), similarly equipped as the hand auger, is used to obtain samples from a depth of up to 4 feet in uncompacted soil. The core sampler is capable of retrieving undisturbed soil samples and is appropriate when low concentrations of metals or organics are of concern. The core sampler should be constructed of stainless steel. A polypropylene core sampler is generally not suitable for sampling dense soils or sampling at an appreciable depth.

The core sampler is pressed into the soil at an angle of 45 to 90 degrees from horizontal and is rotated when the desired depth is reached. The core is then removed, and the sample is placed into an appropriate sample container.

2.3 SUBSURFACE SOIL SAMPLING

Subsurface soil sampling, in conjunction with borehole drilling, is required for soil sampling from depths greater than approximately 6 feet. Subsurface soil sampling is frequently coupled with exploratory boreholes or monitoring well installation. Refer to SOP Nos. 045, 046, and 047 (borehole drilling SOPs) and SOP No. 020 (Monitoring Well Installation).

Subsurface soil sampling may be conducted using a drilling rig or power auger. Selection of sampling equipment depends upon geologic conditions and the scope of the sampling program. Two types of samplers used with machine-driven augers—the split-spoon sampler and the thin-wall tube sampler—are discussed below. All sampling tools should be cleaned before and after each use in accordance with SOP No. 002 (General Equipment Decontamination). Both the split-spoon sampler and the thin-wall tube sampler can be used to collect undisturbed samples from unconsolidated soils. The procedures for using the split-spoon and thin-wall tube samplers are presented below.

2.3.1 Split-Spoon Sampler

Split-spoon samplers are available in a variety of types and sizes. Site conditions and project needs such as large sample volume for multiple analyses determine the specific type of split-spoon sampler to be used. Figure 3 shows a generic split-spoon sampler.

The split-spoon sampler is advanced into the undisturbed soil beneath the bottom of the casing or borehole using a weighted hammer and a drill rod. The relationship between hammer weight, hammer drop, and number of blows required to advance the split-spoon sampler in 6-inch increments indicates the density or consistency of the subsurface soil. After the split-spoon sampler has been driven to its intended depth, it should be removed carefully to avoid loss of sample material. In noncohesive or saturated soil, a catcher or basket should be used to help retain the sample.

After the split-spoon sampler is removed from the casing, it is detached from the drill rod and opened. If VOA samples are to be collected, VOA vials should be filled with soil taken directly from the split-spoon sampler. Samples for other specific chemical analyses should be taken as soon as the VOA sample has

FIGURE 1

HAND-OPERATED CORE SAMPLER

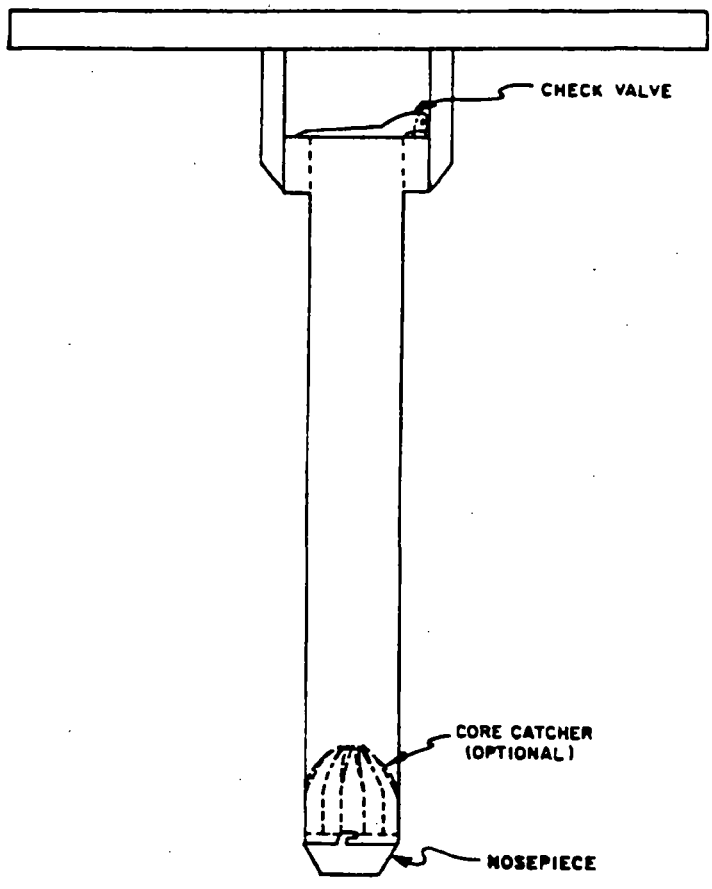
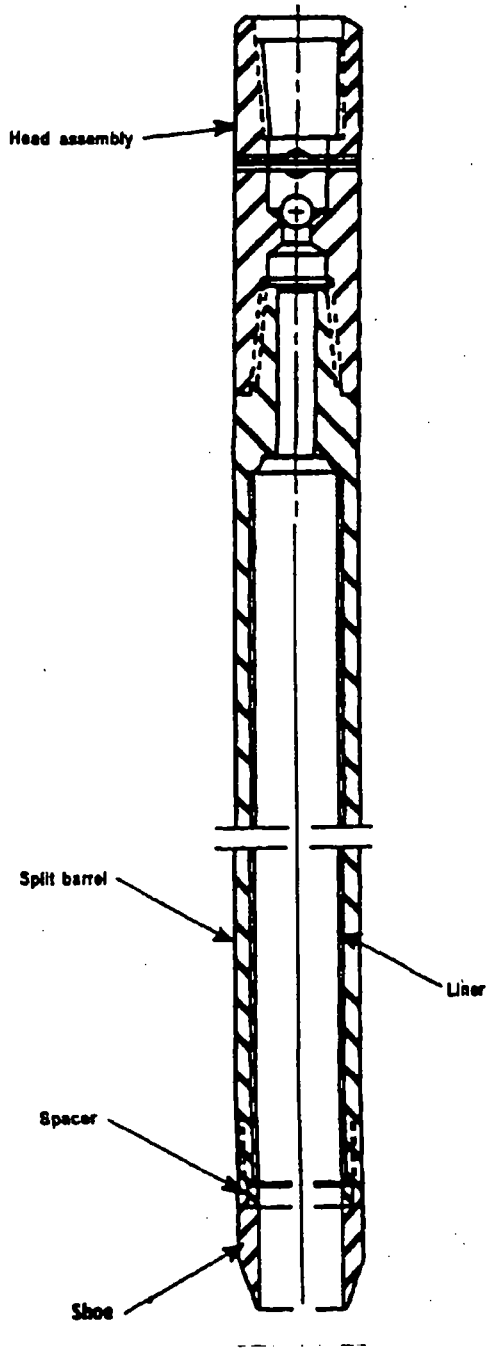


FIGURE 3

GENERIC SPLIT-SPOON SAMPLER



SOP APPROVAL FORM

TETRA TECH EM INC.

ENVIRONMENTAL STANDARD OPERATING PROCEDURE

CONTAINERIZED LIQUID, SLUDGE, AND SLURRY SAMPLING

SOP NO. 008

REVISION NO. 2

Last Reviewed: January 2000

K Riesing

Quality Assurance Approved

May 18, 1993

Date

COLIWASA: Composite liquid waste sampler used to sample free-flowing liquids and slurries in containers.

Hazardous Samples: Hazardous samples include dangerous goods and hazardous substances. Hazardous samples shipped by air should be packaged and labeled in accordance with procedures specified by the International Air Transportation Association (IATA) Dangerous Goods Regulations (DGR); ground shipments should be packaged and labeled in accordance with the U.S. Department of Transportation (DOT) Hazardous Materials Regulations (HMR, *Code of Federal Regulations*, Title 49 [49 CFR] Parts 106 through 180). See SOP No. 019 (Packaging and Shipping Samples) for additional information.

Photoionization Detector (PID): A direct-reading air monitoring instrument used to measure organic vapors based on the principle of photoionization. Examples of PIDs include the HNu and the Microtip.

Flame Ionization Detector (FID): A direct-reading, air monitoring instrument used to measure organic vapors based on the principle of flame ionization. An example of an FID is an organic vapor analyzer (OVA).

1.4 REFERENCES

American Society for Testing and Materials (ASTM) 1997. "Standard Practice for Sampling With a Composite Liquid Waste Sampler (COLIWASA)." ASTM D 5495-94.

ASTM. 1997. "Standard Guide for Sampling of Drums and Similar Containers by Field Personnel." ASTM D 6063-96.

deVera, E.R., B.P. Simmons, R.D. Stephens, and D.L. Storm. 1980. "Samplers and Sampling Procedures for Hazardous Waste Streams." EPA/600/2-80-018. January.

U.S. Environmental Protection Agency (EPA). 1994. "Drum Sampling." Environmental Response Team SOP #2009 (Rev. #0.0, 11/16/94). On-Line Address: http://204.46.140.12/media_resrcs/media_resrcs.asp?Child1=

on this information and based on the scope of work for the project, the sampling team should consist of at least two persons and develop a safe procedure for opening the container and sampling its contents.

Sampling team members must wear appropriate PPE when opening and sampling containers. In some cases, particularly when the contents of the container are not positively known the sampling team should consider using a remote drum opener to open closed containers. The choice of remote drum opening methods depends on the number of drums to be opened, their contents, and their physical condition. One type of remote drum opener uses hydraulic pressure to push a non-sparking metal spike into either the side or top of the drum.

After the container is opened, headspace gases should be monitored using an intrinsically safe monitoring instrument. At a minimum, a preliminary check using appropriate air-monitoring instruments should be conducted to help determine the level of PPE required and the appropriate sampling method.

Layering or stratification of any material left undisturbed over time is likely. Agitation of the container to homogenize the material can be difficult and is undesirable if the contents of the container are not known. The sampling team must ensure that samples represent the entire contents of the container, not just the contents of a single layer.

For sampling liquid and sludge in drums or other small to medium-sized containers, the glass tube sampling method is recommended. Tubes are available that collect a sample from the full depth of a drum and retain it until placement in a sample container. This sampling method is discussed in detail in Section 2.1. The COLIWASA is widely used to sample containerized and free-flowing liquids and slurries in drums and other containers. It also is used for sampling immiscible liquid-phase waste. Use of the COLIWASA is outlined in Section 2.2.

2.1 SAMPLING USING GLASS TUBES

Glass tubes can be used to sample liquids and sludge in containers such as 55-gallon drums. Glass tubes designed for this purpose are normally 122 centimeters (4 feet) long and have an inside diameter of 0.6 to 1.6 centimeters (0.24 to 0.63 inches). Glass tubes with larger inside diameters are used for sampling

8. Slowly insert a glass tube to a level slightly above the bottom of the container or until a solid layer is encountered. If layering or stratification of the liquids in the container is expected, the glass tube should be inserted at a rate that permits the liquid level inside and outside the tube to be about the same. Keep at least 30 centimeters (12 inches) of the glass tube above the top of the container.

9. Allow the liquid in the container to reach its natural level in the glass tube.

10. Cap the top of the glass tube with a safety-gloved thumb or a rubber stopper.

11. Remove the capped glass tube from the container, look for different layers, and insert the uncapped end into the labeled sample container.

12. Release the thumb or rubber stopper from the glass tube to allow the liquid to drain into the sample container.

13. Fill the sample container to approximately 90 percent of its capacity. Repeat steps 8 through 12 if more volume is needed to fill the sample container.

14. Dispose of the glass tube in an appropriate manner.

15. Ensure that a Teflon® liner is present in the sample container cap. Secure the cap tightly on the sample container. All containerized liquid samples should be evaluated in accordance with the "Sample Classification" section of SOP No. 019 (Packaging and Shipping Samples) to determine if they are hazardous samples; hazardous samples should be packaged and shipped in accordance with Dangerous Goods Regulations.

16. Replace the bung in the container or seal the opening in the container with plastic.

17. Complete all chain-of-custody forms and record sampling activities in the field logbook. Unless the sample will be analyzed at the site, complete all sample packaging requirements in accordance with SOP No. 019, Packaging and Shipping Samples.

2.1.2 Sampling Containerized Sludge Using a Glass Tube

The following procedures can be used to sample containerized sludge using a glass tube.

1. Follow steps 1 through 7 for sampling containerized liquids using a glass tube (see Section 2.1.1).

2. Slowly insert a glass tube to a level slightly above the top of the sludge layer. Keep at least 30 centimeters (12 inches) of the glass tube above the top of the container.

3. Allow the liquid in the container to reach its natural level in the glass tube.

Alternatively, if the container opening is sufficiently large, the material may be sampled with a disposable scoop attached to a disposable wooden or plastic rod.

2.2 SAMPLING USING THE COLIWASA

The COLIWASA is used to collect samples of containerized or free-flowing liquid and slurry in drums and other containers. The COLIWASA is commercially available; however, it can be assembled from a variety of materials, including polyvinyl chloride (PVC), glass, or Teflon®. It consists of a 152-centimeter (5-foot) -long tube with an inside diameter of 4 centimeters (1.6 inches). The tube has a neoprene stopper at one end attached by a rod running the length of the tube to a locking mechanism at the other end. Manipulation of the locking mechanism opens and closes the COLIWASA by raising and lowering the neoprene stopper.

The recommended COLIWASA design is shown in Figure 1. The design may be modified to meet the needs of a sampling situation. The major drawbacks of using a COLIWASA involve decontamination and cost. The COLIWASA is difficult to decontaminate in the field and has a high cost compared to glass tubes. However, disposable COLIWASAs are available and are a viable alternative. The COLIWASA's major advantage is its ability to collect samples that accurately represent a multiphase waste.

The following procedure can be used for sampling containerized liquid or slurry using the COLIWASA:

1. If a commercial COLIWASA is unavailable, select the material to make the COLIWASA (for example, PVC, glass, or Teflon®). Assemble the sampler as shown in Figure 1. Check the COLIWASA to make sure it is functioning properly. Adjust the locking mechanism so that the neoprene stopper provides a thin closure.

2. If using a nondisposable COLIWASA, clean the COLIWASA according to procedures specified in SOP No. 002, General Equipment Decontamination. Place all sampling equipment on a plastic sheet next to the container to be sampled. Sample containers should be selected in accordance with the requirements in SOP No. 016, Sample Preservation, Holding Time, and Container Requirements.

3. Affix a completed sample container label to the appropriate sample container.

4. Wear appropriate PPE. Use a PID or FID to monitor airborne organic vapors and gases in the breathing zone. In most cases a PID is preferred because it is intrinsically safe, although an FID may be appropriate in some cases.

ATTACHMENT B

FIGURES

(2 Sheets)

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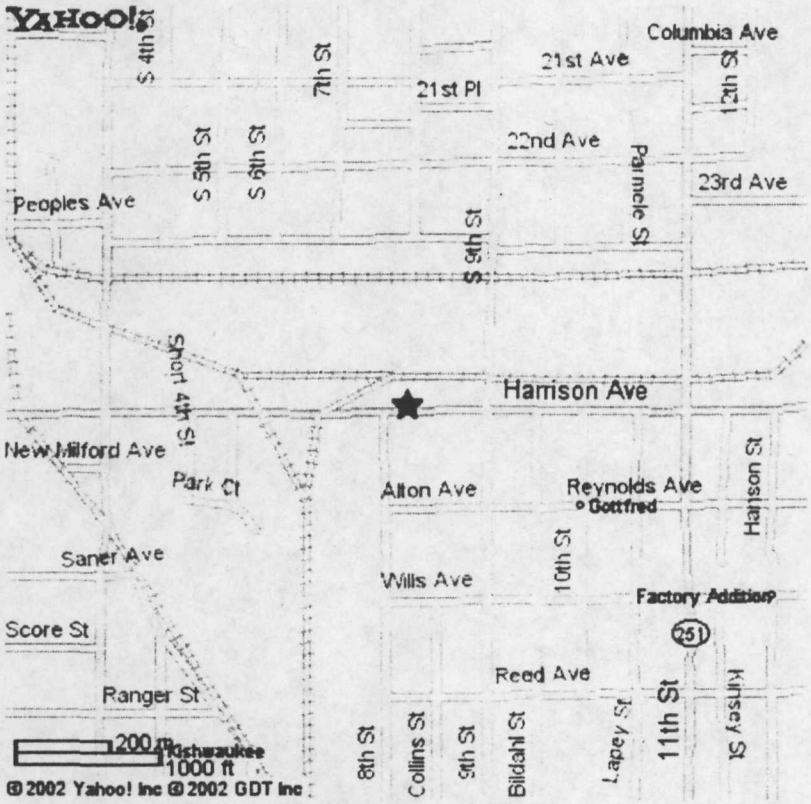

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